June 20, 198

Docket No.: 50-352

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Mr. George A. Hunger, Jr.
Director-Licensing
Philadelphia Electric Company
Correspondence Control Desk
P. O. Box 7520
Philadelphia, Pennsylvania 19101

Dear Mr. Hunger:

SUBJECT: TIE-IN OF RHRSW AND ESW SYSTEMS (TAC NO. 72911)

RE: LIMERICK GENERATING STATION, UNIT 1

The Commission has issued the enclosed Amendment No. 27 to Facility Operating License No. NPF-39 for the Limerick Generating Station, Unit 1. This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated April 10, 1989.

This amendment revises the TSs on the Residual Heat Removal Service Water (RHRSW) and the Emergency Service Water (ESW) Systems to reflect operation of Limerick, Unit 2.

A copy of our Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

Original signed by
Richard J. Clark

Richard J. Clark, Project Manager
Project Directorate I-2
Division of Reactor Projects I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 27 to License No. NPF-39
2. Safety Evaluation

cc w/enclosures:
See next page

DF01
1/1

[TAC NO. 72911]

PDI-2/LA	PDI-2/PM	OGC	PDI-2/D	SPLB	SPLB/C
MO'Brien	RClark:mr	MYoung	WButler	RAnand	JWermiel
6/6/89	06/05/89	6/19/89	6/20/89	6/7/89	6/7/89

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

June 20, 1989

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Director-Licensing
Philadelphia Electric Company
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P. O. Box 7520
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1. Amendment No. 27 to
License No. NPF-39
2. Safety Evaluation

cc w/enclosures:
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

PHILADELPHIA ELECTRIC COMPANY

DOCKET NO. 50-352

LIMERICK GENERATING STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 27
License No. NPF-39

1. The Nuclear Regulatory Commission (the Commission) has found that

   A. The application for amendment by Philadelphia Electric Company (the licensee) dated April 10, 1989, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-39 is hereby amended to read as follows:

   Technical Specifications

   The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 27 , are hereby incorporated into this license. Philadelphia Electric Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective upon issuance of an operating license to Limerick Generating Station, Unit No. 2.

FOR THE NUCLEAR REGULATORY COMMISSION

/s/

Walter R. Butler, Director
Project Directorate I-2
Division of Reactor Projects I/II

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 20, 1989

PDI-2/LA	PDI-2/PM	OGC	PDI-2/D
MO'Brien	RClark:mf		WButler
6/20/89	06/05/89	6/9/89	6/20/89

3. This license amendment is effective upon issuance of an operating license to Limerick Generating Station, Unit No. 2.

FOR THE NUCLEAR REGULATORY COMMISSION

Walter R. Butler

Walter R. Butler, Director
Project Directorate I-2
Division of Reactor Projects I/II

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 20, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 27

FACILITY OPERATING LICENSE NO. NPF-39

DOCKET NO. 50-352

Replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are identified by Amendment number and contains vertical lines indicating the area of change. Overleaf pages are provided to maintain document completeness.*

Remove	Insert
xiii	xiii
xiv	xiv*
xxi	xxi
xxii	xxii*
3/4 7-1	3/4 7-1
3/4 7-2	3/4 7-2
3/4 7-3	3/4 7-3
3/4 7-4	3/4 7-4
B 3/4 7-1	B 3/4 7-1
B 3/4 7-2	B 3/4 7-1a
-	B 3/4 7-2
-	-

LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

BASES

BASES

3/4.7 PLANT SYSTEMS

3/4.7.1 SERVICE WATER SYSTEMS

RESIDUAL HEAT REMOVAL SERVICE WATER SYSTEM - COMMON SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.1.1 At least the following independent residual heat removal service water (RHRSW) system subsystems, with each subsystem comprised of:

a. Two OPERABLE RHRSW pumps, and

b. An OPERABLE flow path capable of taking suction from the RHR service water pumps wet pits which are supplied from the spray pond or the cooling tower basin and transferring the water through one Unit 1 RHR heat exchanger,

shall be OPERABLE:

a. In OPERATIONAL CONDITIONS 1, 2, and 3, two subsystems.

b. In OPERATIONAL CONDITIONS 4 and 5, the subsystem(s) associated with systems and components required OPERABLE by Specification 3.4.9.2, 3.9.11.1, and 3.9.11.2.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, 3, 4, and 5.

ACTION:

a. In OPERATIONAL CONDITION 1, 2, or 3:

1. With one RHRSW pump inoperable, restore the inoperable pump to OPERABLE status within 30 days, or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

2. With one RHRSW pump in each subsystem inoperable, restore at least one of the inoperable RHRSW pumps to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

3. With one RHRSW subsystem otherwise inoperable, restore the inoperable subsystem to OPERABLE status with at least one OPERABLE RHRSW pump within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

4. With both RHRSW subsystems otherwise inoperable, restore at least one subsystem to OPERABLE status within 8 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN* within the following 24 hours.

*Whenever both RHRSW subsystems are inoperable, if unable to attain COLD SHUTDOWN as required by this ACTION, maintain reactor coolant temperature as low as practical by use of alternate heat removal methods.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

5. With two RHRSW pump/diesel generator pairs* inoperable, restore at least one inoperable RHRSW pump/diesel generator pair* to OPERABLE status within 30 days, or be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the following 24 hours. The provisions of specification 3.0.4 are not applicable.

6. With three RHRSW pump/diesel generator pairs* inoperable, restore at least one inoperable RHRSW pump/diesel generator pair* to OPERABLE status within 7 days, or be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the following 24 hours.

7. With four RHRSW pump/diesel generator pairs* inoperable, restore at least one inoperable RHRSW pump/diesel generator pair* to OPERABLE status within 8 hours, or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

b. In OPERATIONAL CONDITION 3 or 4 with the RHRSW subsystem(s), which is associated with an RHR loop required OPERABLE by Specification 3.4.9.1 or 3.4.9.2, inoperable, declare the associated RHR loop inoperable and take the ACTION required by Specification 3.4.9.1 or 3.4.9.2, as applicable.

c. In OPERATIONAL CONDITION 5 with the RHRSW subsystem(s), which is associated with an RHR loop required OPERABLE by Specification 3.9.11.1 or 3.9.11.2, inoperable, declare the associated RHR system inoperable and take the ACTION required by Specification 3.9.11.1 or 3.9.11.2, as applicable.

SURVEILLANCE REQUIREMENTS

4.7.1.1 At least the above required residual heat removal service water system subsystem(s) shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying that each valve in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.

*A RHRSW pump/diesel generator pair consists of a RHRSW pump and its associated diesel generator. If either a RHRSW pump or its associated diesel generator becomes inoperable, then the RHRSW pump/diesel general pair is inoperable.

EMERGENCY SERVICE WATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.1.2 At least the following independent emergency service water system loops, with each loop comprised of:

a. Two OPERABLE emergency service water pumps, and

b. An OPERABLE flow path capable of taking suction from the emergency service water pumps wet pits which are supplied from the spray pond or the cooling tower basin and transferring the water to the associated Unit 1 and common safety-related equipment,

shall be OPERABLE:

a. In OPERATIONAL CONDITIONS 1, 2, and 3, two loops.

b. In OPERATIONAL CONDITIONS 4, 5, and *, one loop.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, 3, 4, 5, and *.

ACTION:

a. In OPERATIONAL CONDITION 1, 2, or 3:

1. With one emergency service water pump inoperable, restore the inoperable pump to OPERABLE status within 45 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

2. With one emergency service water pump in each loop inoperable, restore at least one inoperable pump to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

3. With one emergency service water system loop otherwise inoperable, declare all equipment aligned to the inoperable loop inoperable**, restore the inoperable loop to OPERABLE status with at least one OPERABLE pump within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

*When handling irradiated fuel in the secondary containment.
**The diesel generators may be aligned to the OPERABLE emergency service water system loop provided confirmatory flow testing has been performed. Those diesel generators not aligned to the OPERABLE emergency service water system loop shall be declared inoperable and the actions of 3.8.1.1 taken.

LIMITING CONDITION FOR OPERATION (Continued)

4. With three ESW pump/diesel generator pairs** inoperable, restore at least one inoperable ESW pump/diesel generator pair** to OPERABLE status within 72 hours, or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

5. With four ESW pump/diesel generator pairs** inoperable, restore at least one inoperable ESW pump/diesel generator pair** to OPERABLE status within 8 hours, or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

b. In OPERATIONAL CONDITION 4 or 5:

1. With only one emergency service water pump and its associated flowpath OPERABLE, restore at least two pumps with at least one flow path to OPERABLE status within 72 hours or declare the associated safety related equipment inoperable and take the ACTION required by Specifications 3.5.2 and 3.8.1.2.

c. In OPERATIONAL CONDITION*

1. With only one emergency service water pump and its associated flow path OPERABLE, restore at least two pumps with at least one flow path to OPERABLE status within 72 hours or verify adequate cooling remains available for the diesel generators required to be OPERABLE or declare the associated diesel generator(s) inoperable and take the ACTION required by Specification 3.8.1.2. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.1.2 At least the above required emergency service water system loop(s) shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying that each valve (manual, power-operated, or automatic) that is not locked, sealed, or otherwise secured in position, is in its correct position.

b. At least once per 18 months by verifying that:

1. Each automatic valve actuates to its correct position on its appropriate ESW pump start signal.

2. Each pump starts automatically when its associated diesel generator starts.

*When handling irradiated fuel in the secondary containment.
**An ESW pump/diesel generator pair consists of an ESW pump and its associated diesel generator. If either an ESW pump or its associated diesel generator becomes inoperable, then the ESW pump/diesel generator pair is inoperable.

3/4.7.1 SERVICE WATER SYSTEMS - COMMON SYSTEMS

The OPERABILITY of the service water systems ensures that sufficient cooling capacity is available for continued operation of safety-related equipment during normal and accident conditions. The redundant cooling capacity of these systems, assuming a single failure, is consistent with the assumptions used in the accident conditions within acceptable limits.

The RHR and ESW systems are common to Units 1 and 2 and consist of two independent subsystems each with two pumps. One pump per subsystem (loop) is powered from a Unit 1 safeguard bus and the other pump is powered from a Unit 2 safeguard bus. In order to ensure adequate onsite power sources to the systems during a loss of offsite power event, the inoperability of these supplies are restricted in system ACTION statements.

RHRSW is a manually operated system used for core and containment heat removal. Each of two RHRSW subsystems has one heat exchanger per unit. Each RHRSW pump provides adequate cooling for one RHR heat exchanger. By limiting operation with less than three OPERABLE RHRSW pumps with OPERABLE Diesel Generators, each unit is ensured adequate heat removal capability for the design scenario of LOCA/LOOP on one unit and simultaneous safe shutdown of the other unit.

Each ESW pump provides adequate flow to the cooling loads in its associated loop. With only two divisions of power required for LOCA mitigation of one unit and one division of power required for safe shutdown of the other unit, one ESW pump provides sufficient capacity to fulfill design requirements. ESW pumps are automatically started upon start of the associated Diesel Generators. Therefore, the allowable out of service times for OPERABLE ESW pumps and their associated Diesel Generators is limited to ensure adequate cooling during a loss of offsite power event.

3/4.7.2 CONTROL ROOM EMERGENCY FRESH AIR SUPPLY SYSTEM

The OPERABILITY of the control room emergency fresh air supply system ensures that the control room will remain habitable for operations personnel during and following all design basis accident conditions. Constant purge of the system at 1 cfm is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. The OPERABILITY of this system in conjunction with control room design provisions is based on limiting the radiation exposure to personnel occupying the control room to 5 rem or less whole body, or its equivalent. This limitation is consistent with the requirements of General Design Criterion 19 of Appendix A, 10 CFR Part 50.

3/4.7.3 REACTOR CORE ISOLATION COOLING SYSTEM

The reactor core isolation cooling (RCIC) system is provided to assure adequate core cooling in the event of reactor isolation from its primary heat sink and the loss of feedwater flow to the reactor vessel without requiring actuation of any of the emergency core cooling system equipment. The RCIC system is conservatively required to be OPERABLE whenever reactor pressure exceeds 150 psig. This pressure is substantially below that for which low pressure core cooling systems can provide adequate core cooling.

The RCIC system specifications are applicable during OPERATIONAL CONDITIONS 1, 2, and 3 when reactor vessel pressure exceeds 150 psig because RCIC is the primary non-ECCS source of emergency core cooling when the reactor is pressurized.

With the RCIC system inoperable, adequate core cooling is assured by the OPERABILITY of the HPCI system and justifies the specified 14 day out-of-service period.

The surveillance requirements provide adequate assurance that RCIC will be OPERABLE when required. Although all active components are testable and full flow can be demonstrated by recirculation during reactor operation, a complete functional test requires reactor shutdown. The pump discharge piping is maintained full to prevent water hammer damage and to start cooling at the earliest possible moment.

3/4.7.4 SNUBBERS

All snubbers are required OPERABLE to ensure that the structural integrity of the reactor coolant system and all other safety related systems is maintained during and following a seismic or other event initiating dynamic loads. Snubbers excluded from this inspection program are those installed on nonsafety-related systems and then only if their failure or failure of the system on which they are installed would have no adverse effect on any safety related system.

Snubbers are classified and grouped by design and manufacturer but not by size. For example, mechanical snubbers utilizing the same design features of the 2-kip, 10-kip, and 100-kip capacity manufactured by Company "A" are of the same type. The same design mechanical snubbers manufactured by Company "B" for the purposes of this Technical Specification would be of a different type, as would hydraulic snubbers from either manufacturer.

A list of individual snubbers with detailed information of snubber location and size and of system affected shall be available at the plant in accordance with Section 50.71(c) of 10 CFR Part 50. The accessibility of each snubber shall be determined and approved by the Plant Operations Review Committee. The determination shall be based upon the existing radiation levels and the expected time to perform a visual inspection in each snubber location as well as other factors associated with accessibility during plant operations (e.g., temperature, atmosphere, location, etc.), and the recommendations of Regulatory Guides 8.8 and 8.10. The addition or deletion of any snubber shall be made in accordance with Section 50.59 of 10 CFR Part 50.

The visual inspection frequency is based upon maintaining a constant level of snubber protection to each safety-related system. Therefore, the required inspection interval varies inversely with the observed snubber failures on a given system and is determined by the number of inoperable snubbers found during an inspection of each system. In order to establish the inspection frequency for each type of snubber on a safety-related system, it was assumed that the frequency of snubber failures and initiating events is constant with time and that the failure of any snubber on that system could cause the system to be unprotected and to result in failure during an assumed initiating event. Inspections performed before that interval has elapsed may be used as a new reference point to determine the next inspection. However, the results of such early inspections performed before the original required time interval has elapsed (nominal time less 25%) may not be used to lengthen the required inspection interval. Any inspection whose results required a shorter inspection interval will override the previous schedule.

The acceptance criteria are to be used in the visual inspection to determine OPERABILITY of the snubbers.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 27 TO FACILITY OPERATING LICENSE NO. NPF-39

PHILADELPHIA ELECTRIC COMPANY

LIMERICK GENERATING STATION, UNIT 1

DOCKET NO. 50-352

1.0 INTRODUCTION

By letter dated April 10, 1989, Philadelphia Electric Company (the licensee) requested an amendment to Facility Operating License No. NPF-39 for the Limerick Generating Station, Unit 1. The proposed amendment would revise the Technical Specifications (TS) for the Residual Heat Removal Service Water (RHRSW) and the Emergency Service Water (ESW) Systems to reflect operation of Limerick, Unit 2.

2.0 DISCUSSION

The Residual Heat Removal Service Water (RHRSW) system is a safety-related system designed to supply cooling water to the RHR heat exchangers of both units. The RHRSW system is common to both reactor units and consists of two loops. Each loop services two RHR heat exchangers (one RHR heat exchanger in each unit) and provides sufficient cooling for safe shutdown cooling and accident mitigation of both units. The two RHRSW system return loops can be cross-connected for operational flexibility. Two valves in series are provided on the cross-connect, so a failure in one loop could be isolated from the other loop and, thus, not affect the operation of the other loop. Each loop has two pumps located in the spray pond structure. The RHRSW pumps take suction from the spray pond, circulate this water through the tube side of the RHR heat exchangers and return the water to the spray pond. One pump has the capability to supply 100% flow to one RHR heat exchanger in the associated loop. During two-unit operation, there are two heat exchangers (one per unit) required for safe shutdown and accident mitigation of both units (see figure 1).

The RHRSW system is available for normal shutdown or emergencies, and does not usually operate during power operation. However, the RHRSW system can be used in conjunction with the RHR system suppression pool cooling mode to maintain the suppression pool below specified temperature limits.

The RHRSW return piping from the RHR heat exchangers and the return piping from the corresponding Emergency Service Water (ESW) loop share a common return header to the spray pond or cooling tower. Loss of the RHRSW/ESW return loop does not affect the capability of the second return

loop to safely shut down either or both units during emergency conditions. One pump in each loop (A and B) is powered from Unit 1 power supplies and, in the event of a loss of power, backup supply is provided from Unit 1 emergency diesel generators (EDG). The other pump in each loop (C and D) is similarly powered from Unit 2 and Unit 2 EDGs (following receipt of the Unit 2 operating license). This configuration exists due to the common design of the RHRSW system and must be recognized by operators when entering any Action statement for RHRSW. The importance of recognizing the interdependency on the other unit's emergency diesel generators is reflected in the proposed changes to the TS.

The proposed changes to the TS for the RHRSW system are as follows:

Page 3/4 7-1, Section 3.7.1.1

- Existing Actions a.1 and a.2 are combined into Action a.1. This will allow any single RHRSW pump to be inoperable for 30 days, eliminating the 92 day allowed outage time for inoperable RHRSW pump C or D.

- Existing Action a.3 will now be renumbered as a.2 and modified to address any single RHRSW pump in each subsystem inoperable versus the specific combination of the A RHRSW pump in one loop and the B RHRSW pump in the other loop. This change addresses the C and D RHRSW pumps in the same fashion as the A and B RHRSW pumps. The allowed outage time for this Action will be 7 days.

- Existing Action a.4 and a.5 will now be renumbered as a.3 and a.4 respectively. No specific technical change is proposed.

- New Actions a.5, a.6 and a.7 are incorporated. These Actions, and an associated footnote, address RHRSW pump/diesel generator pairs to assure that combinations of RHRSW pumps and/or emergency diesel generators (EDG) inoperabilities do not adversely affect the ability of the facility to respond to an event with a loss of offsite power. Because the RHRSW system is common to Unit 1 and Unit 2 and the C and D RHRSW pumps are powered from Unit 2 EDGs on a loss of power, consideration for combinations of inoperable RHRSW pumps and EDGs (including Unit 2 EDGs which power RHRSW components) for safe operation of Unit 1 is specified.

- Surveillance 4.7.1.1.b is being deleted. The function of the RHRSW radiation monitor is addressed by LCO 3.3.7.11. Its presentation in the RHRSW system specification results in inappropriately declaring RHRSW inoperable if its radiation monitor is inoperable.

- Editorial changes to add "-Common System" to the title, identify the RHR heat exchanger in the LCO as the "Unit 1" RHR heat exchanger and delete reference to TS 3.4.9.1 in the LCO.

The Emergency Service Water (ESW) system is a safety related system, designed to supply cooling water to selected equipment on both Limerick Unit 1 and Unit 2 during a loss of offsite power condition and/or loss-of-coolant accident (LOCA). It is comprised of two independent loops (A and C, or B and D). Each pump is capable of supplying 100% flow through its respective loop. Each pump can supply four emergency diesel generators (EDG) (two per unit) and all other required cooling loads for safe shutdown for both units (see figure 2).

The A and B pumps are powered from Unit 1 buses. Presently the C and D pumps are temporarily powered from Unit 1 buses. Following receipt of the Unit 2 Low Power Operating License, emergency backup power for the C and D ESW pumps will be supplied from the Unit 2 emergency diesel generators. The importance of this interdependency to Unit 2 diesel generators is reflected in Action statement a.4 of the proposed Technical Specification.

The proposed changes to the TS for the ESW system are as follows:

Pages 3/4 7-3, Section 3.7.1.2

- Action a.3 and associated footnote **, Action b.1 and Action b.2 (renumbered Action c.1) are rewritten for clarity. No specific technical change is proposed.

- New Actions a.4 and a.5 are proposed. These Actions, and an associated footnote, address ESW pump/diesel generator pairs to assure that combinations of ESW pumps and/or EDG inoperabilities do not adversely affect the ability of the facility to respond to an event with a loss of offsite power. Because the ESW system is common to Unit 1 and Unit 2, and the C and D ESW pumps are powered from Unit 2 EDGs on a loss of power, consideration for EDGs (including Unit 2 EDGs that power ESW components) for safe operation of Unit 1 is specified.

- Existing Action c is deleted since Limerick Unit 2 is now interconnected per the design for two unit operation.

- Surveillance 4.7.1.2.b requires that certain ESW tests be performed "during shutdown." Since ESW is a system common to both Unit 1 and Unit 2, performance of the test may be required when only one unit is shutdown. Therefore, the other operating unit could not take credit for the performance of the test as it would not strictly meet the requirement of "during shutdown." To allow the flexibility to perform ESW testing without requiring both units to be shutdown, 4.7.1.2.b is being revised to delete "during shutdown."

- Editorial changes to add "-Common System" to the title and specifically identify the associated flow path in the LCO as "Unit 1 and common."

In addition to the above changes to the TS, the licensee proposes to revise and expand the Bases (pages B 3/4 7-1 and B 3/4 7-1a) to discuss two-unit operation and the design bases requirements.

3.0 EVALUATION

The RHRSW and ESW systems are common to both Limerick Units 1 and 2. The tie-in of the pumps and the arrangement of the power supplies (both offsite and on-site power sources) were evaluated by the staff in the early 1980s when both units were still under construction. The tie-in power supply arrangement was approved in the staff's SER (NUREG-0991). Before Unit 1 was licensed, construction of Unit 2 was halted by Order of the Pennsylvania Public Utility Commission and, at the time, it appeared doubtful that construction of Unit 2 would be resumed. Even though the arrangement of cross-tie piping, pumps and power supplies was approved, the staff did not focus on what the detailed TS requirements should be for two-unit operation, because two-unit operation was very doubtful. The Unit 1 TS that were issued with the Unit 1 operating license on August 8, 1985 were developed based on one-unit operation with backup from Unit 2 components. The RHRSW and ESW pumps for Unit 2 were in place and operational and were included in the Unit 1 protected area. There were "temporary" piping arrangements to permit their use to support Unit 1. With the spare support components from Unit 2, the TS that were issued with the Unit 1 license permitted extended out-of-service times for inoperable equipment compared to the Standard BWR TS for a two-unit facility. Inasmuch as these are shared common systems between Units 1 and 2 (like the common control room) and the same operators are trained, certified and rotated between units, the TS for Unit 1 must be the same as those developed for Unit 2. This amendment revises the Unit 1 TS to the same as the Unit 2 TS certified on June 2, 1989 and that will be issued with the Unit 2 license.

The Limerick Unit 1 TS, as currently written, reflect that Limerick Unit 2 has been under construction and credit is taken for the ability to utilize RHRSW pumps associated with Unit 2 in the Unit 1 TS. Specifically, the RHRSW TS contain special provisions for operation of all four RHRSW pumps while the piping leading to the Unit 2 portion of the RHRSW system was isolated through the use of blind flanges within the Unit 1 Protected Area Boundary.

The proposed changes to the Action Statements in the Limiting Condition for Operation and the Surveillance Requirements for the RHRSW system reflect two-unit operation of LGS, including the operability of the Unit 2 electrical sources that power the 'C' and 'D' RHRSW pumps. In addition, the operability of the Unit 2 emergency diesel generators and the additional Unit 2 equipment will relieve operating restrictions on Unit 1, which currently exist due to the interconnection with a unit under construction, and will improve overall system reliability. This relief is reflected in the proposed changes to the TS.

The present TS for the ESW system reflect the ability to utilize ESW pumps associated with Unit 2 power supplies. Specifically, the ESW TS contain special provisions for the piping leading to the Unit 2 portion of the ESW system being isolated within the Unit 1 Protected Area Boundary.

The proposed changes to the Action statements of the Limiting Condition for Operation for the ESW system reflect two-unit operation of LGS including the operability of the Unit 2 emergency diesel generators which will power the 'C' and 'D' ESW pumps. In addition, the operability of the Unit 2 emergency diesel generators and the connection of the Unit 1 and Unit 2 piping will relieve operating restrictions that currently exist due to the interconnection with a unit under construction. The ESW pumps each have sufficient capacity to supply cooling water to four emergency diesel generators and the associated cooling loads required for safe shutdown for both units.

The proposed changes to the TS add an Action statement that will ensure that plant operators recognize the interdependency to Unit 2 emergency diesel generators. This addition will ensure that sufficient margin of safety is maintained when an ESW Action statement is entered and is acceptable.

Action a.1 of LCO 3.7.1.1 proposes to reduce the allowed outage time (AOT) for the C or D RHRSW pump. This is consistent with the A and B RHRSW pump and with the proposed Limerick Unit 2 Technical Specifications for the C and D pumps. This change is conservative and is therefore acceptable.

Action a.2 of LCO 3.7.1.1 proposes to increase the allowed outage time for RHRSW pumps A and B from 8 hours to 7 days (see existing Action a.3 for this condition). The existing Action's AOT of 8 hours is based on the fact that the C and D RHRSW pumps' back up power supply (i.e., Limerick Unit 2 EDGs) are not operable due to the ongoing Unit 2 construction. Therefore, during a loss-of-offiste-power event with the A and B RHRSW pumps inoperable, there would be no RHRSW system. This is consistent with other designs which allow an 8 hour AOT. With the completion of the two unit design and the operability of Unit 2 EDGs, the C and D RHRSW are fully capable of supplying the required safety related function in any design basis event with concurrent loss of offsite power, even with A and B RHRSW pumps inoperable. Similarly designed systems have been previously reviewed and found acceptable on other dockets (including the Standard Technical Specifications) to justify an allowed outage time of 7 days. This discussion is valid for any combination of a single RHRSW pump in one loop inoperable concurrent with either RHRSW pump on the other loop inoperable. Therefore this proposed Action is acceptable and will not adversely affect safety.

New Actions a.5, a.6 and a.7 of LCO 3.7.1.1 provide allowed outage times for various combinations of inoperable RHRSW pumps and/or EDGs that supply back up power to RHRSW pumps. The allowed outage times are based on the capabilities of the remaining operable EDGs and RHRSW pumps to

respond to an accident and/or loss of offsite power. Action a.5 serves to enforce conservative actions only in the event the Unit 2 EDGs providing backup power to C and D RHRSW are inoperable, because the Limerick Unit 1 Technical Specifications provide AOTs at least as conservative when RHRSW pump(s) and/or Unit 1 EDG(s) are inoperable. This situation, where both EDGs serving C and D RHRSW pumps are inoperable, is identical to the facility design on which the existing Unit 1 specifications are based - that is all four RHRSW pumps operable and no credit for the Unit 2 EDGs being operable. The existing Unit 1 Technical Specifications allow continuous operation with no restrictions. The proposed Action a.5 is conservative by requiring this condition be limited to 30 days. To maintain the flexibility to change Unit 1 Operational Conditions, such as during unit startup, the exception to Specification 3.0.4 is also provided in this Action. Because this new Action represents more restrictive operation of Unit 1 with inoperable equipment, the change will not adversely affect safety and is therefore acceptable. Actions a.6 and a.7 similarly serve to enforce conservative actions only with specific combinations of EDGs and RHRSW pumps inoperable. In each case, the new Action is conservative, being more restrictive, or equivalent to the currently approved Unit 1 Technical Specifications or action as evaluated in the previous paragraph, will not adversely affect safety, and, therefore, is acceptable.

The deletion of 4.7.1.1.b will eliminate the declaring of an RHRSW subsystem inoperable in the event the isolation function, which occurs on a process high radiation signal, is not operable. LCO 3.3.7.11 and Table 3.3.7.11-1 Action 101 provides appropriate requirements to address these radiation monitors. These monitors were the subject of an NRC Safety Evaluation Report (SER) dated August 7, 1987. This SER acknowledged there was no NRC or regulatory requirement to have automatic isolation of the RHRSW system. The automatic termination of RHRSW flow on high radioactivity is not necessary to mitigate the consequences of a design basis accident, or to maintain offsite doses within prescribed limits, since the flow is essentially within a closed system. Sufficient time is available for operator action to manually stop flow if appropriate. It is therefore inappropriate to declare an RHRSW subsystem inoperable and subsequently require a unit shutdown when the inline RHRSW radiation monitor is inoperable. Since LCO 3.3.7.11 adequately addresses this monitor's function, the deletion of surveillance 4.7.1.1.b will not adversely affect safety and is acceptable.

For the ESW system, proposed Actions a.4 and a.5, and associated footnote of LCO 3.7.1.2, provide AOTs for various combinations of inoperable ESW pumps and/or EDGs which supply backup power to ESW components. The allowed outage times are based on the capabilities of the remaining operable ESW pumps and the EDGs to respond to an accident and/or loss-of-offsite-power. These Actions serve to enforce conservative actions only with specific combinations of inoperable components. Some combinations have other ESW (LCO 3.7.1.2) or EDG (LCO 3.8.1.1) Actions

that are more conservative than these proposed actions and will provide for limited acceptable safe operation. In each case where the new Actions are more conservative than existing Actions, this represents additional restrictions and therefore will not adversely affect safety. Thus, the changes are acceptable.

Existing Action c in LCO 3.7.1.2 was required during Limerick Unit 2 construction. The Unit 2 ESW system is now available for interconnection with Unit 1 as designed and described in the Limerick FSAR. Consistent with these other changes to reflect the common system function of ESW for both Unit 1 and Unit 2, this Action is being deleted. Since this design has been previously reviewed and found acceptable in NRC SER of August 1983, this change will have no adverse affect on safety and is acceptable.

Normally it is preferred to perform ESW testing of 4.7.1.2.b during shutdown conditions when only one of the redundant loops is typically required to be operable. In the Limerick design with two units sharing this common system this leads to an impractical situation of requiring both units to be shutdown for surveillance testing. In the event ESW is rendered inoperable during this testing while one or both units are operating, its associated Technical Specification Actions provide appropriate restrictions and compensatory measures to be taken. These Actions allow required ESW testing to be performed during unit operation while providing acceptable limitations such that there is no adverse affect on safety. Thus, the changes are acceptable.

For Limerick Unit 2, the draft TS submittal by the applicant was similar to that proposed in the application, which is the subject of this safety evaluation. Both the original draft TS for Unit 2 and the proposed TS submitted for Unit 1 listed requirements separately for the RHRSW pumps, the ESW pumps and the supporting diesel generators. During review of the draft TS for Unit 2, it was the staff's position that the requirements should be expressed in terms of RHRSW/diesel generator pairs and ESW pump/diesel generator pairs. For the Final Draft Unit 2 TS a note was added to the ACTIONS in Section 3.7.1.1 that: "A RHRSW pump/diesel generator pair consists of a RHRSW pump and its associated diesel generator. If either a RHRSW pump or its associated diesel generator becomes inoperable, then the RHRSW pump/diesel generator pair is inoperable." A similar note was added to the ACTIONS in Section 3.7.1.2 of the Final Draft Unit 2 TS that stated: "An ESW pump/diesel generator pair consists of an ESW pump and its associated diesel generator. If either an ESW pump or its associated diesel generator becomes inoperable, then the ESW pump/diesel generator pair is inoperable".

The Final Draft TS for Unit 2 is formatted in terms of these pump/diesel generator pairs. It has been the staff's position that for a two unit facility; there should be one set of TS for both units or the TS, if separate, should be identical. This is particularly important at Limerick where there is a common control room, where the operators are

qualified for both units and are rotated between Units and where there are common systems such as the RHRSW and ESW with cross unit power supplies. The staff proposed that the TS which are addressed herein be reformatted to be the same as those developed for Final Draft Unit 2 TS. The licensee agreed to the revisions during a meeting on June 5, 1979. The TS being issued by this Amendment are revised in terms of wording but not intent from those in the licensee's application. The staff has reviewed the No Significant Hazards Consideration Notice (which was written with the expectation that there might be changes in format and wording) and has determined that the Notice fully describes and envelopes the revisions the staff has proposed in the TS submitted by the licensee and the initial determination was not affected. The specific changes proposed by the staff and accepted by the licensee are:

a) The title at the top pages 3/4 7-1 now reads "Residual Heat Removal Service Water System." The title at the top of page 3/4 7-3 reads "Emergency Service Water System." After each title the staff proposed to add "-Common System" to clearly alert the operators that there is an interdependency between units. These changes also require a revision to the Index on pages xiii and xxi.
b) renumbering various Actions to be consistent with other Action deletions and additions
c) combining and rewording Actions
d) updating Bases for these systems

These changes are primarily administrative and editorial changes made for clarity. These revisions provide no change in technical content or intent of the specifications proposed by the licensee and no reduction in the margin of safety. Thus, the changes are acceptable.

4.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change to a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes to the surveillance requirements. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement nor environmental assessment need be prepared in connection with the issuance of this amendment.

5.0 CONCLUSION

The Commission made a proposed determination that the amendment involves no significant hazards consideration, which was published in the Federal Register (54 FR 18953) on May 3, 1989 and consulted with the State of Pennsylvania. No public comments were received and the State of Pennsylvania had no comments.

The staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and the security nor to the health and safety of the public.

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FIGURE 1

RHR Service Water System

Simplified Schematic for Units 1 & 2 Operation

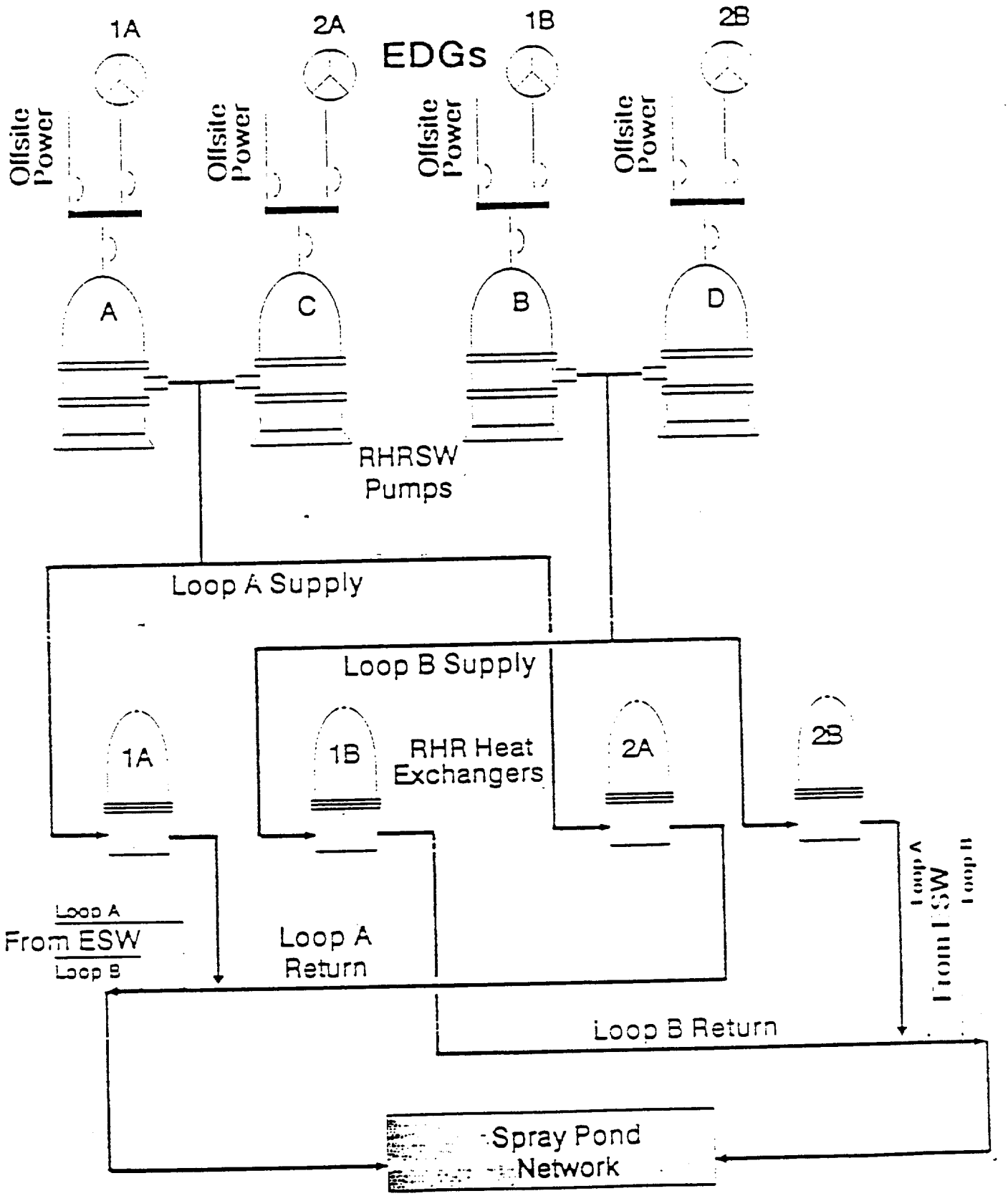

FIGURE 2

Emergency Service Water System

Simplified Schematic for Units 1 & 2 Operation